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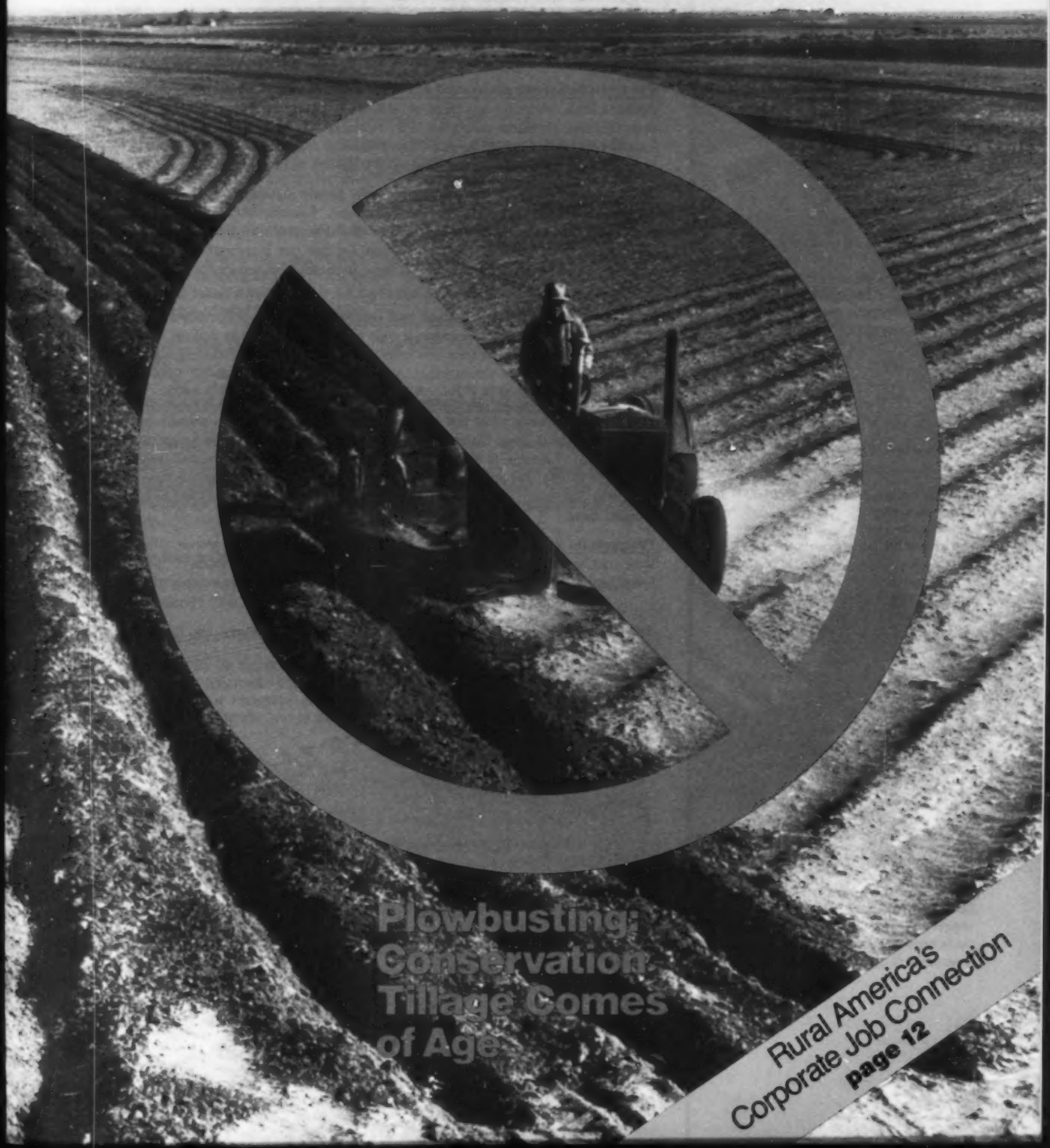

Plowbusting: Conservation Tillage Comes of Age

Rural America's Corporate Job Connection

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PERSPECTIVES

FARMLAND VALUES DROPPED FOR THE FOURTH STRAIGHT YEAR, according to USDA figures released in early June. Nationally, the average value of agricultural land fell 12% between April 1984 and April 1985.

This latest drop follows declines of 1% from 1981 to 1982, 6% from 1982 to 1983, and 1% from 1983 to 1984, says USDA economist William Heneberry of the Economic Research Service. The most dramatic 1-year decline on record was 19% in 1933.

The Corn Belt, Lake States, and Northern Plains were hardest hit with declines of 20% or more. In Iowa, where farmers faced an 11% drop in farmland values last year, this year's news is worse: Farmland values fell 29%. Nebraska was next on this year's list at −28%, followed by Illinois at −27%, and South Dakota at −26%. Since 1981, values have dropped nearly 50% in Iowa and Nebraska and more than 40% in Illinois, Indiana, and Ohio.

There were a few bright spots in the generally gloomy farmland picture. Most notably: the six New England states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut, where increases averaged 14%. More than likely, however, this reflects a demand for residential and other nonfarm uses for land that is currently classified as farmland, according to Heneberry. Other farmland value increases were reported for Texas and New Jersey.

The average acre of U.S. farmland was valued at $679 on April 1, down from last year's $782. The U.S. average encompasses a wide variety of productivity and use classes of land, Heneberry points out, from semi-arid rangeland to irrigated land producing high-value specialty crops.

Cash rents for whole farms dropped in most states, but not by as much as the decline in land values. The same states that had the largest declines in farmland values—Iowa and Nebraska—had the sharpest declines in rental payments. In Iowa, cropland rents dropped from last year's $117 an acre to the current level of $103. In Nebraska, irrigated cropland rents fell from $114 to $92, and dry cropland rents fell from $57 to $47. Competition among farmers for rented land is still fairly strong, Heneberry says; otherwise, rents would probably have dropped more.

Prospects for recovery in land values are clouded, the economist admits. The major reasons: continued high real interest rates, low commodity prices, prospects for large 1985 crops, lower export forecasts, uncertainty over farm income, and the large number of farms for sale.

Although Farmland Values Declined in Almost Every State, the Corn Belt, Lake States, and Northern Plains Were Hardest Hit

Percent change between April 1984 and April 1985:

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Practical economic intelligence from USDA's Economic Research Service

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Plowbusting: Conservation Tillage Comes of Age *by Ellen Banker* 4

According to a recent USDA survey, more than a fifth of the farmers who grew field crops in 1983 used some form of conservation tillage. Why did they trade neatly plowed rows for last season's crop residues? The overwhelming answers: soil and water conservation, and savings in time and money.

Blame the Crops, Not the Renters, for Erosion *by Eric Van Chantfort* 6

It's an old question: Are farmers who rent their cropland less committed to preventing soil erosion than farmers who own the land? "Not necessarily," says economist Nelson Bills, who takes a fresh look at the myth and finds the crops grown on rented land may be more at fault than the farmers.

The Bottom Line Gives the Edge to Beef by the Box *by Doug Martinez* 8

Familiar-looking "sides" of beef are becoming a progressively less familiar sight at the shipping docks of meat packers. More often, the beef is already cut into smaller sections, then vacuum-wrapped, and "boxed" for refrigerated delivery.

Population Patterns Will Help Shape Future Meat Demand *by Ellen Banker* 10

The graying of America and a slowdown in population growth. Both demographic trends will affect just about every aspect of our lives, including food choices. Economists Jim Blaylock and Dick Haidacher look at the long-term prospects for meat consumption.

Rural America Has a Corporate Job Connection *by Ellen Banker* 12

Who provides more new jobs in rural America—small, independent businesses or large corporations? The answer is one that might surprise a few people.

Who's Making Rural House Calls? *by Doug Martinez* 14

Rural areas may be on the path to better health care, but they are still more than a few steps behind their metro counterparts in attracting doctors. In 1970, the number of private physicians in nonmetro areas stood at 67 per 100,000 residents, 76 fewer than in metro areas. By the end of the decade, the gap had widened.

DEPARTMENTS

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Plowbusting: Conservation Tillage Comes of Age

Bob Wetherbee says it saves him time, labor, and fuel, and he agrees with Fred Awe who likes it because it helps reduce soil erosion. Still other farmers cite increased yields as a benefit.

They are all talking about conservation tillage, a planting method that has redefined the role of the plow—and often does entirely without it.

Unlike conventional tillage, where all the topsoil is mixed or inverted through plowing, power tilling, or multiple disking, conservation tillage minimizes soil disturbance and leaves plant residues on the field surface. Practices vary from no-till, where only a narrow slot is opened to plant seed, to the more common minimum till, where the entire field surface may be worked with some form of limited tillage.

Conservation tillage has caught on in a big way, almost doubling in acreage across the nation during the last decade, according to USDA economist Richard Magleby of the Economic Research Service. Estimates vary. Some place current acreage in conservation tillage at close to 100 million, up from about 49 million acres in 1974. Other estimates are lower, but one thing is sure: Before 1970, there wasn't much acreage in conservation tillage to count.

It's mainly been a phenomenon of the last decade and a half, Magleby says, although there were farmers who practiced the methods as early as the late 1940's.

"We used some minimum till on our family farm in Minnesota back in the early 1950's when I was a kid," recalls Frank Lessiter who is now editor of *No-Till Farmer*, a monthly magazine that keeps farmers informed of the latest trends in conservation tillage.

A Boost From OPEC

Lessiter says that, at the beginning, conservation tillage practices really spread by word of mouth. "One farmer might try it and have some success. Then his neighbor would see the results and try it too."

Word-of-mouth got a boost from the oil crisis of 1973, when the cost and availability of fuel became an issue for everyone.

More than a fifth of the nation's farmers who grew crops during the 1983 season used at least one form of conservation tillage on all or part of the land they planted.

"Farmers discovered they could save a third to half the fuel needed for conventional plowing if they used some form of conservation tillage instead," Lessiter says.

Despite its acceptance in the mainstream of agriculture today, conservation tillage is not for everyone. Soil conditions, climate, terrain, and the crops themselves must be factored into farmers' tillage decisions.

Conservation tillage is generally most successful with row crops grown in moderate climates. The major benefits are lower fuel and labor requirements and significantly reduced soil erosion and water runoff. Nutrient loss is also controlled to a more limited extent.

But there are tradeoffs. Weed and insect problems can change with conservation tillage. It may require adjustments in pest management practices, different herbicide and insecticide mixes, and less reliance on weed cultivation. In some instances, pest control costs are higher.

Nonetheless, researchers say that overall cost savings with conservation tillage can be significant. Savings on energy and labor have a direct impact on net returns, Magleby points out, usually offsetting additional chemical expenses, if any.

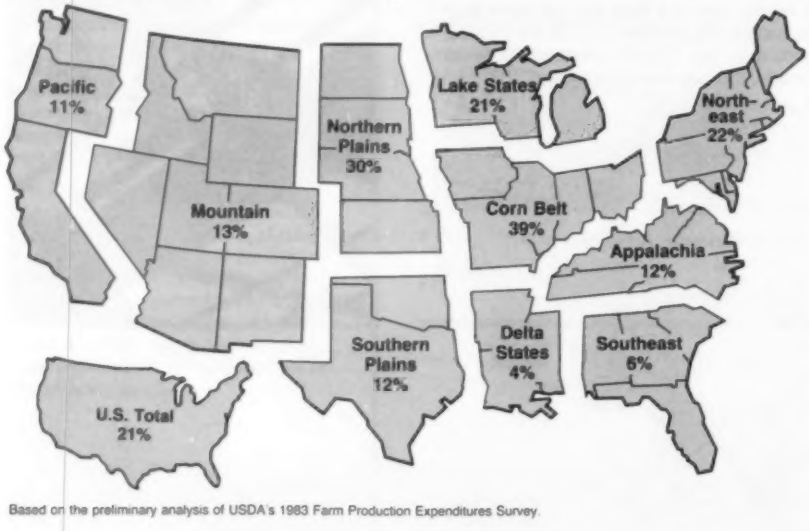
Who, What, and Where?

How many farmers use conservation tillage, where do they farm, and what do they grow? A recent USDA survey of over 11,000 farmers nationwide helps answer these questions.

The survey, which focused on the cropping practices of farmers in 1983, indicated that more than a fifth of the nation's farmers who grew crops during that season used at least one form of conservation tillage on all or part of the land they planted.

Conservation Tillage Is Most Widely Practiced In the Corn Belt and Northern Plains

Percent of farmers using conservation tillage methods in each region:



Based on the preliminary analysis of USDA's 1983 Farm Production Expenditures Survey.

Unlike conventional tillage, where all the topsoil is mixed or inverted through plowing, power tilling, or multiple disking, conservation tillage minimizes soil disturbance and leaves plant residues on the field surface.

However, regional differences were pronounced. In the Corn Belt, 39 percent of the farmers practiced some conservation tillage. That's the highest percentage of any region. Farmers in the Northern Plains came in next, with a 30-percent adoption rate.

"The rates of adoption are generally better in the North than in the South and West," Magleby says. Conservation tillage was reportedly used by only 13 percent of farmers in the Rocky Mountain states, 6 percent of farmers in the Southeast, and just 4 percent of farmers in the Mississippi Delta region.

Regional cropping patterns play a role. "Conservation tillage is used primarily when growing corn, soybeans, and small grains," Magleby says. For that reason, it comes as no surprise that the highest adoption rates are found in the regions (particularly the Corn Belt and Northern Plains) where these crops are most widely grown.

Almost half the farmers who practiced conservation tillage in 1983 grew corn for grain or silage, with no double-cropping. Farmers who double-cropped soybeans following wheat, oats, or barley also tended to use conservation tillage, particularly the no-till practice, because of the speed in which they could get the second crop in the ground, Magleby says.

The size of the farming operation also had an impact on how likely farmers were to adopt conservation tillage. Of the farmers who used the practice in 1983, Magleby says, two-thirds operated farms of 180 acres or more.

Looking for Motives

Most analysts agree that there are two major reasons to use conservation tillage—soil and water conservation and the savings in cost and time. What is not in universal agreement is the relative importance of these two factors when farmers make their decisions.

What do farmers say? According to USDA's survey, both factors were rated as equally important by 48 percent of the farmers who used conservation tillage. Another 26 percent rated soil and water conservation on the top of the list, and 21 percent rated cost and time savings as most important.

Some farmers may start out with one as a priority and end up with the other.

Fred Awe, a grain and beef producer in Shullsburg, Wisc., says he began using conservation tillage in 1975 to cut production costs. After 10 years of experience, Awe is now committed to farming with no-till. However, his major reason has changed.

"I started using conservation tillage from an economic standpoint, but today my priority is control of soil erosion," Awe says.

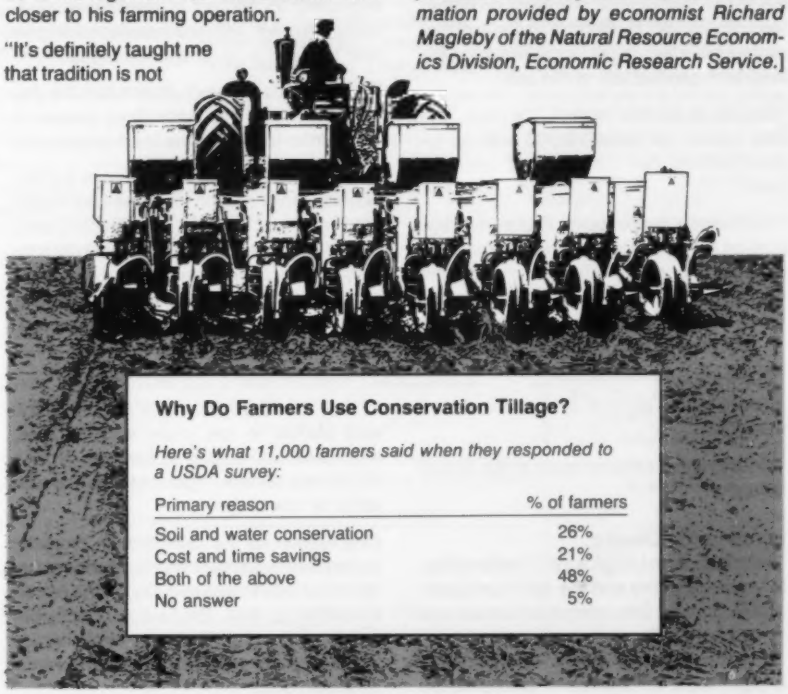
Bob Wetherbee of Fairmount, N. Dak., agrees. The control of soil erosion is also his top priority. He sees conservation tillage as a management tool that's drawn him closer to his farming operation.

"It's definitely taught me that tradition is not always the best way of making decisions," Wetherbee says.

While many farmers who use conservation tillage claim that it has increased their herbicide costs, Wetherbee reports just the opposite experience. "I have found that the combined effects of cultivation, residue on the surface, early planting, and a reduction in soil disturbance all add up to fewer weeds."

Looking 10 years down the road, Wetherbee says he doesn't know if conservation tillage will guarantee him lower fuel bills, lower herbicide costs, and more free time, but he is sure about one thing: "I know it will protect my investment. It will mean a reduction of erosion on my land." □

[*Based primarily on a preliminary analysis of USDA's 1983 Farm Production Expenditures Survey and additional information provided by economist Richard Magleby of the Natural Resource Economics Division, Economic Research Service.*]



Why Do Farmers Use Conservation Tillage?

Here's what 11,000 farmers said when they responded to a USDA survey:

Primary reason	% of farmers
Soil and water conservation	26%
Cost and time savings	21%
Both of the above	48%
No answer	5%

Blame the Crops, Not the Renters, for Erosion

Rented land tends to be more heavily concentrated in erosive row crops.

Who takes more care to protect cropland from erosion—owners or renters?

Conventional wisdom holds that farm operators are less conscientious about controlling erosion on land they rent than on land they own. Based on this assumption, some researchers have argued that soil conservation policies may be needed to specifically address the lack of commitment to erosion control on the part of farmland renters and tenant farmers.

Nelson Bills does not agree, despite national rainfall erosion data showing that average soil loss per acre is around 8 percent higher on rented land. Bills, an agricultural economist with USDA's Economic Research Service, works out of Cornell University in Ithaca, New York.

The owner-versus-renter conservation question is an important one because an estimated 35 to 40 percent of all U.S. cropland is operated under a rental arrangement. Bills' analysis, however, challenges the notion that erosion problems on rented land can usually be blamed on the fact that renters have less regard for maintaining the long-term productivity of the soil.

"Despite its intuitive appeal," he says, "the idea cannot be substantiated with up-to-date national data on cropland management."

Bills makes a simple point: Higher average erosion rates on rented land are not necessarily caused by inferior conservation management. Differences in erosion rates between owned and rented land might also be attributable to one, or both, of the following:

- more highly erosive land in the rented category.
- more highly erosive crops in the rented category.

Isolating the Causes

Using data from USDA's 1977 National Resources Inventory and the 1978 Landownership Survey, Bills compared owned and rented land with similar physical characteristics and similar crops. He did not find a significant difference in conservation management as reflected in crop rotation, tillage practices, and conservation support practices.

"While management on rented land may be substandard in some situations, national data do not support the hypothesis that farmers neglect the land they rent," he says.

Nor did he find evidence that rented land tends to be of a more highly erosive nature. In physical makeup, roughly 9 percent of U.S. cropland is highly erosive, while 36 percent is subject to minimal erosion. The remaining 55 percent is considered moderately erosive, with soil loss depending on how the land is used and managed.

The evidence, he says, shows that the distribution of land into these three classes is very similar for both owned and rented land.

Bills did come up with what he says is probably the major reason for somewhat higher erosion rates on rented land. Rented land, he maintains, tends to be more heavily concentrated in erosive row crops. Row crops often require more intensive cultivation, and they don't provide the same protective soil cover that wheat, barley, hay, and other close-grown and sod crops may offer.

In 1977, about 63 percent of all rented land was planted to row crops such as corn, soybeans, and cotton. In contrast, around 56 percent of owner-operated cropland was used for row crops.

One reason for the difference in cropping patterns may be the "shorter planning horizon and less tenure security" of the renter, according to Bills. Production of soil-conserving sod crops may not be economically feasible under relatively short-term rental arrangements.

Conservation Incentives

Bills offers several possible reasons why renters, in general, may match owners in attention to land stewardship. In many cases, he says, farmers rent land that they plan to buy at some future time. It makes sense that such land would be treated with as much care as land already owned.

He also speculates that some conservation practices may appeal to both owners and renters because these practices can be cost effective in their own right. Farmers often realize cost savings with reduced tillage. Some probably leave crop residues—which provide an effective ground cover—on the land because it's not economical to remove them. And they may rotate crops, another practice that can conserve soil, to control pests and improve yields.

The motives may vary from farmer to farmer, but conservation practices seem to be popular among both owners and renters, Bills says. The issue, he concludes, does not appear to be negligent management on the part of renters. Instead, the crux of the problem may lie in the structure of the rental market and rental arrangements that foster production of the more erosive row crops on rented land.

"Proportionately more rented land is used for the production of erosive row crops," he says. "If that trend persists or accelerates, rented cropland will make progressively larger contributions to the nation's soil loss problem in the future." □

[Based on information provided by economist Nelson Bills of the Natural Resource Economics Division, Economic Research Service.]

Linking Erosion to Farm Programs

True or False?

- Farm commodity and income support programs can encourage farmers to use cropland in ways that conflict with the goals of soil conservation.
- Many farmers who participate in USDA farm programs are contributing to the nation's soil erosion.
- Soil erosion problems can be largely solved by ensuring greater consistency between commodity and conservation programs.

The answers, according to a new study by Economic Research Service economist Katherine Reichelderfer, are true, true, and false.

Reichelderfer confirms that the economic incentives built into commodity programs may increase the likelihood that erosive crops such as cotton, corn, and soybeans will be planted on fragile land. One reason is that the programs do not cover many of the least erosive land uses.

As a result, she says, the programs—based on the appeal of their price and income support provisions—may encourage the conversion of erodible land from grassland, pasture, and timber into the production of erosive row crops.

Her analysis also shows that USDA program participants in certain production areas make significant contributions to soil erosion problems. Between one-fourth and one-half of total erosion apparently could be addressed through modifications in USDA commodity or conservation assistance programs, she says.

However, the remaining one-half to three-fourths of the cropland eroding at "unacceptable" rates would not be affected because the operators of this land do not participate in USDA programs.

She also cautions that the economic objectives of the commodity programs could potentially be compromised if conservation provisions were so severe as to discourage large numbers of producers from enrolling in commodity programs.

Do USDA Farm Program Participants Contribute to Soil Erosion? *by Katherine Reichelderfer. (Published April 1985; 74 pages of text and data tables; GPO Stock No. 001-019-00383-9; $3.00.)*

Rural or Urban, Banks Are Banks

Spurred by deregulation, rural banks are swiftly becoming as competitive and sophisticated as their small urban counterparts.

That's the finding of economist Daniel Milkove of USDA's Economic Research Service.

"Many rural banks do take fewer risks than urban banks," he says, "but that's because of the modest value of assets in many rural banks."

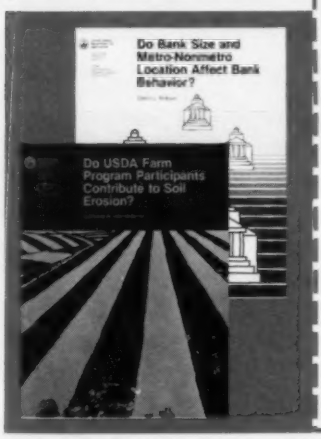
He adds that a bank's lending policies, its aggressiveness in attracting large deposits, and the variety of services it provides depend more on the size of its assets than on its rural or urban location.

"Similar analysis based on an earlier time period might support the notion that nonmetro banks are more conservative," Milkove says, "but insulation from national money market changes is the apparent reason rather than any innate difference in bank management."

Deregulation of the banking industry has intensified the competition for deposits, says Milkove. And rural bankers have been able to adjust to the new financial conditions as quickly as their city counterparts.

Does that mean nonmetro banks will be able to cope as financial deregulation continues? Milkove isn't offering any guarantees, but he does say that rural banks will probably do as well as metro banks of the same size. Many smaller banks in both areas, however, may find it harder to maintain their independence from larger institutions.

Do Bank Size and Metro-Nonmetro Location Affect Bank Behavior? *by Daniel L. Milkove. (Published April 1985; 11 pages of text, charts, and tables; GPO Stock No. 001-019-00392-8; $1.00.)*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The Bottom Line Gives the Edge to Beef by the Box

Those familiar-looking "sides" of beef are becoming a progressively less familiar sight at the loading docks of meat packers.

More often, the beef is "boxed"—cut into smaller sections that are then vacuum-wrapped and placed in cartons ready for refrigerated delivery.

Economist Lawrence Duewer of USDA's Economic Research Service recently looked at the methods and costs of moving beef from slaughterhouse to supermarket. He found that industry practices are changing fairly rapidly.

"In 1982, 58 percent of all federally inspected steer and heifer slaughter left the packing plant as boxed beef, compared with 43 percent in 1979," says Duewer.

Many of the carcasses that were shipped also ended up as boxed beef. Fabricators buy carcasses and then process them into hamburger patties and other products for restaurants, supermarkets, and institutions.

Duewer notes that 25 percent of the 1982 slaughter was boxed by fabricating plants and food chain fabricators. That meant a total of 83 percent of the beef was boxed before it arrived at the retail outlet.

More recently, another type of boxed beef has appeared. Known as tray-ready, it's almost that simple to prepare once it reaches the food store. Trimmed and cut to retail size steaks and roasts, for example, tray-ready beef is kept together in subprimal units (such as sirloin or top round), vacuum-wrapped, and placed in cartons at the packing plants. True to its name, this beef is ready for traying, wrapping, weighing, and pricing at the retail store.

Advantages Are Significant

Retailers pay more for boxed and tray-ready beef than they do for carcasses, but in many cases they can end up saving money, says Duewer.

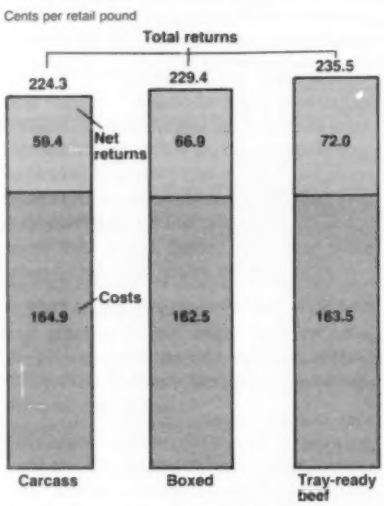
"For retailers, one of the big advantages of buying boxed or tray-ready beef is that they can purchase according to their needs," he says. "When only sides of beef were available, retailers were forced to buy and sell every cut in the proportion it is found in a carcass."

Industry practices in moving beef from slaughterhouse to supermarket are changing rather rapidly.

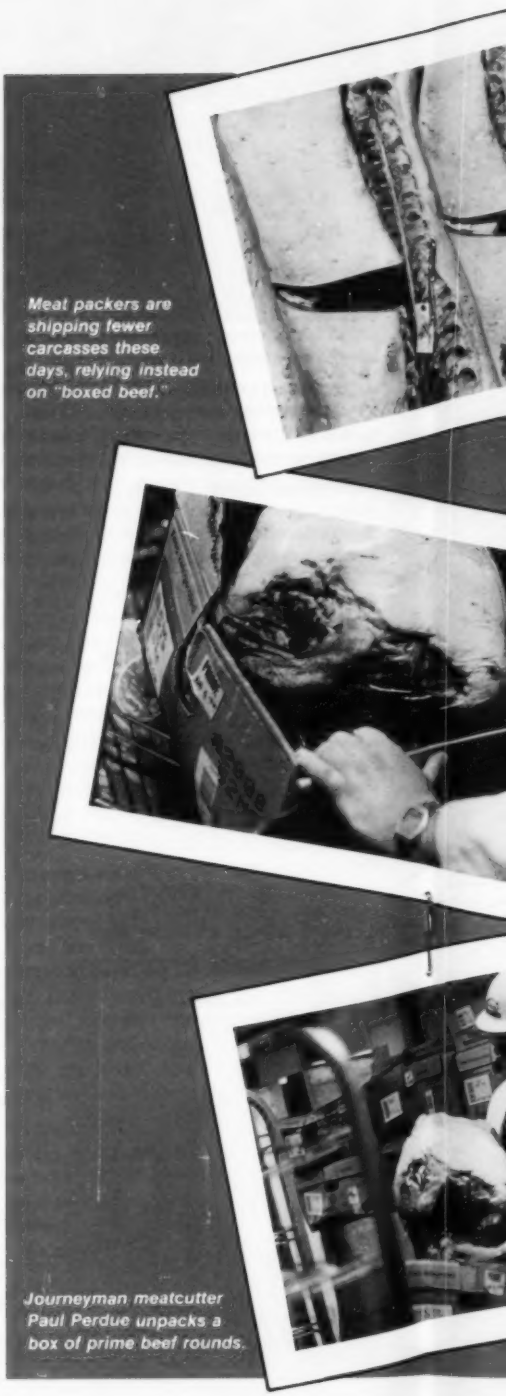
They also had to employ enough skilled meatcutters to process the carcasses into retail cuts. Many supermarket chains economized by bringing the carcasses into central warehouses for breaking into smaller sections.

Duewer adds that "when you buy boxed beef, you're not buying a lot of the fat and bone that normally would come with a carcass. Therefore, the cost per pound purchased is higher, but the cost per pound sold may not be higher. The gain comes from the fact that many services are already incorporated into the meat purchased."

Costs and Returns for Boxed and Tray-Ready Beef Compare Favorably with Traditional Carcass System*



*Analysis based on chain of 80 mid-sized stores located 600 miles from a meat packer selling 32 percent ground beef with a boxed beef purchase premium of $32.50 (per carcass) and a $97.50 purchase premium for tray-ready beef.



Meat packers are shipping fewer carcasses these days, relying instead on "boxed beef."

Journeyman meatcutter Paul Perdue unpacks a box of prime beef rounds.

Boxed beef arriving at a Giant supermarket in suburban Washington, D.C., is ready to be sliced into retail size cuts.

When both costs and returns are considered, boxed beef and tray-ready systems come out ahead of carcass systems.

When both costs and returns are considered, boxed beef and tray-ready systems come out ahead of systems that involve central cutting of carcasses by retailers in their warehouses before delivery to local stores, he says.

According to Duewer, all retailers could benefit from boxed and tray-ready beef handling, but smaller grocers may find it easier to shift to such a system.

Labor Is Important Factor

He goes on to say that labor is a significant factor, comprising more than one-half of the costs considered in his study.

"The need to stock retail counters and to provide customer service means all stores require some meat department personnel," Duewer says, "but job descriptions and wage levels might differ if less cutting is done at the retail level. Stocking and packaging wage rates are lower than meatcutter wage rates by as much as $2 to $4 per hour."

In comparing the different systems, Duewer found that store labor costs could be reduced almost 2 cents per retail pound by changing from carcass to boxed beef and nearly 11 cents by shifting from carcass to a tray-ready handling method.

"Certainly," he says, "a higher price per carcass pound is normally paid by the retailer for boxed and tray-ready beef than for carcasses. The higher price reflects the additional services purchased. In some cases, this price premium may range up to 7 cents per pound for boxed beef and 20 cents per pound for tray-ready beef."

Because stores would have lower labor costs, though, boxed beef may actually be less expensive than other methods—and thus more profitable to the store.

Retailers also save on transportation. The costs for a traditional carcass system averaged almost 9 cents per retail pound, compared with 4 cents for boxed beef and 3½ cents for tray-ready beef.

"Transportation savings reduce costs, because fewer pounds are shipped when carcasses are cut to primals at the packing plants," says Duewer. "Waste has been trimmed off. Since the grocery chain is paying by the pound, it's less costly."

Returns Higher With Boxed Beef

Moreover, he adds, "the systems wherein the retailers buy carcasses involve more shrinkage loss than the comparable systems where they buy vacuum-packaged primals. For that reason, shrinkage costs of the boxed beef method are relatively lower than those of the other methods."

In comparing the traditional beef handling method with the two newer systems, Duewer determined that the overall returns were higher for both boxed and tray-ready beef.

He says that grocery stores, on average, would realize net returns of about 59 cents per retail pound of beef using a carcass system, 67 cents with a boxed method, and 72 cents using a tray-ready system.

Although the trend toward boxed beef continues to be strong, the adoption of tray-ready packaging is less certain.

"Collective bargaining may slow its acceptance because of the decreased need for meatcutters in the stores," says Duewer. "A change to the tray-ready system leaves the packaging labor at the local store, but does eliminate most meatcutters."

If a supermarket chain shifted to a central meatcutting operation, some butchers might be moved to this facility, he says. If the store chain opted for meat already cut at a packing plant, it would probably mean a move for the workers to a different geographic location—with no assurance that the workers would be hired. It might also mean a slice in salary, since meatcutter wages are usually lower at the packing plant. □

[Based on information provided by economist Lawrence Duewer of the National Economics Division, Economic Research Service.]

Population Patterns Will Help Shape Future Meat Demand

There's no denying it: As a nation, we're getting older, and our population is not growing as fast as it once did. Projections into the future point to more of the same. Experts claim these trends will have an impact on the way Americans think, live, buy, and eat.

Food demand will certainly be affected, according to James Blaylock and Richard Haidacher of the Economic Research Service. The two USDA economists recently took a look at long-term prospects for meat consumption based on the demographic trends.

Slower growth in the population, for example, suggests slower growth in domestic demand for meats and most other foods.

"The numbers basically indicate that industries which rely on population growth rates to fuel expansion must find alternative markets for their products if they are to maintain past growth patterns," says Blaylock.

The reasons people eat what they do are complicated. Some researchers say that age is a major factor.

Meat consumption will also change as the age distribution within the population changes.

The reasons people eat what they do are complicated. Ethnic origin, lifestyle, income, family size, prices, preferences, as well as age, contribute to the food choices we make. But some researchers contend that age is a *major* factor, Haidacher adds.

Who eats the most beef and pork today? "Americans between the ages of 40 and 64 eat more red meats than any other age group," says Blaylock. Those over 64 usually eat considerably more poultry than do people under 40.

Consumption patterns of various age groups can be measured. Assuming these patterns hold, the information can then be combined with population forecasts to project future consumption.

Age and Population Trends

The median age has been inching up ever since it was first reported by the Census Bureau—at 16.7 years—for all Americans in 1820.

On July 1, 1983, the median age was 30.9 years. This means that half the population was older than 30.9, and half was younger.

Census Bureau projections put the median age at 36.3 by the year 2000, 40.8 by 2030, and 42.8 in 100 years.

Those 65 and older now make up about 13 percent of the U.S. population. By the middle of the next century, more than one out of every four Americans may be included in that age group.

Changes in age distribution will interact with the slowing growth rate of the population. The U.S. population increased by 50 percent between 1950 and 1980, from 152 million to 228 million. Projections indicate growth at only about half that rate—24 percent—for 1980 to 2010, or an increase of 55.5 million people.

From 2010 to 2040, the Census Bureau foresees an increase of just 9 percent. And, by 2050, the rate of population growth is expected to have dropped to almost zero.

To project the potential impact on meat consumption from the anticipated changes in population and age distribution, Blaylock and Haidacher used an economic model based on recent estimates of consumer behavior.

Their results: Consumer demand for beef, pork, and poultry will continue to increase, but the rate of growth for each will steadily decline.

Population growth alone will be enough to increase overall consumption of poultry and red meats, at least for a while.

Looking Ahead

They project, for example, that beef consumption may rise about 1.1 billion pounds from the 1984 level by 1990. The increase is expected to be progressively smaller in each succeeding 5-year period. By 2010 to 2015, it could be down to 538 million pounds, just half the gain from 1984 to 1990. Between 2025 and 2030, the growth in beef demand may be only about 222 million pounds—barely one-fifth of the projected increase for the initial 1984-90 forecast period.

The same general pattern applies to pork and poultry, mostly reflecting continued but slowing growth in the size of the U.S. population.

Population Changes Will Make Their Mark on Consumer Demand for Red Meats and Poultry

	Additional demand for:		
	Beef	Pork	Poultry
	in millions of pounds[1]		
1984 to 1990			
Due to population growth	1,037	823	868
Due to age distribution	58	88	105
Net amount of growth	1,095	911	973
2010 to 2015			
Due to population growth	562	445	470
Due to age distribution	−24	18	38
Net amount of growth	538	463	508
2025 to 2030			
Due to population growth	267	212	223
Due to age distribution	−45	−4	13
Net amount of growth	222	208	236

[1]Demand calculated in addition to the amounts required in 1984.

Relatively speaking, the changing age distribution within the population has a minor role, yet its impact cannot be dismissed. While a slowdown in population growth would theoretically affect all meats equally, an expanding proportion of the population in older age groups would, almost certainly, affect different meats in different ways.

Isolating the age factor from changes in population size, Blaylock and Haidacher found that, at first, the "graying" of the population could contribute positively to the demand for all three meats. Poultry and pork might benefit most in the earliest stage, with the larger quantity increases possibly shifting to beef and pork as more of the population moves into the 40-64 age group—the group that tends to favor red meats.

By the second decade of the 21st century, however, the population may have aged enough that beef demand might actually begin to drop were it not for continued growth in population. Pork would be hurt to a lesser extent. Poultry demand may continue to increase, albeit at a slower rate, based on the consumption patterns of the 65-and-up age group.

In other words, within an overall demand pattern paralleling the slowdown in population growth, the additional impacts from an aging population may mean a somewhat faster slowdown in the demand growth for beef than in the growth for poultry during the next 50 years.

Can you bet on these projections? The economists point out that their analysis assumes that recent consumption patterns persist and that relative prices and incomes remain constant throughout their projection period, which stretches to the year 2030.

"In reality, of course, changes occur, and they could negate or exaggerate the results of this analysis," Haidacher says. "Nevertheless, this is a starting point to sort out how much the food sector may have to adjust as American society changes." □

[*Based on information provided by economists James R. Blaylock and Richard C. Haidacher of the National Economics Division, Economic Research Service.*]

Rural America Has a Corporate Job Connection

Who provides more new jobs to rural America—small, independent businesses or large corporations?

The answer, according to USDA economist James P. Miller of the Economic Research Service, is one that might surprise a few people. "Large corporations," Miller says, "mainly through branches, subsidiaries, and headquarters operations, definitely provide the majority of new jobs."

This fact may be surprising, he says, partly because of an earlier study that presented a different conclusion for the nation as a whole. In 1979, a researcher at the Massachusetts Institute of Technology reported that 80 percent of the new jobs created in the United States between 1969 and 1976 were provided by businesses with fewer than 100 employees.

Miller, however, raises two points about this study. The first involves a careful reading of the results.

While the individual offices and plants counted in the study may have had fewer than 100 employees, many were subsidiaries or branches of larger corporations. Since the "parent" corporation is really providing the jobs, Miller prefers to measure the size of the firm by counting the total number of people it employs at all its locations. This approach, he maintains, gives a more accurate representation of what kind of companies are really providing the new jobs.

When the previous study applied this measure, it came up with a 56-percent share for small, *independent* firms—still a majority of the new jobs, but not nearly as overwhelming as the 80-percent figure which got most of the media attention.

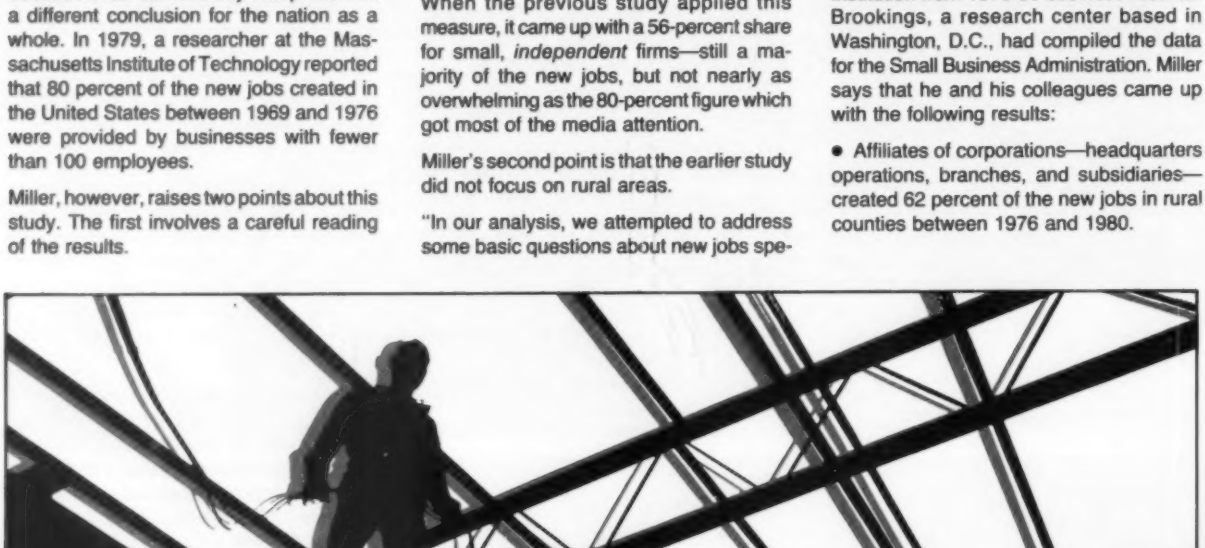
Miller's second point is that the earlier study did not focus on rural areas.

"In our analysis, we attempted to address some basic questions about new jobs specifically in rural America," Miller says. For example, what is the importance of small businesses as sources of new jobs in rural areas? Are they more likely to generate new jobs than corporate affiliates? And will these small firms—and the jobs they create—still be around 5 years down the road?

Who Provides Rural Jobs?

To answer these questions, ERS researchers analyzed data on about 5 million establishments compiled by The Brookings Institution from 1976-80 business records. Brookings, a research center based in Washington, D.C., had compiled the data for the Small Business Administration. Miller says that he and his colleagues came up with the following results:

- Affiliates of corporations—headquarters operations, branches, and subsidiaries—created 62 percent of the new jobs in rural counties between 1976 and 1980.



Corporations Created Around Twice as Many Jobs in Rural America as Independent Firms from 1976 to 1980

	Jobs created	Jobs lost	Net gain in jobs	Share of net gain
	in thousands (000)			*percent*
Independent firms				
Small[1]	2,251	1,429	823	31%
Large	309	282	27	1%
Total	2,561	1,711	850	32%
Corporate affiliates	4,178	2,352	1,826	68%

[1]Fewer than 100 employees.
Totals may not add or subtract exactly because of rounding.

• Independent firms provided the remaining 38 percent. Those that employed fewer than 100 people accounted for 33 percent of the new jobs in rural areas, and those that employed more than 100 people accounted for only 5 percent.

Yet even these figures may somewhat understate the role of corporate affiliates, Miller claims, because the affiliates also provided greater job stability.

"While small, independent firms initially created a large number of rural jobs, they were also plagued by high failure rates and low job expansion rates, especially within the early years after startup," he says.

A truer picture of the job role of affiliates versus independents, he adds, can be obtained by considering the number of old jobs that were lost along with the number of new jobs contributed. When jobs lost are subtracted from new jobs created, it turns out that corporate affiliates accounted for 68 percent of the *net* gain in rural jobs between 1976 and 1980. The small independents could take credit for 31 percent of the net gain; the larger independents for just 1 percent.

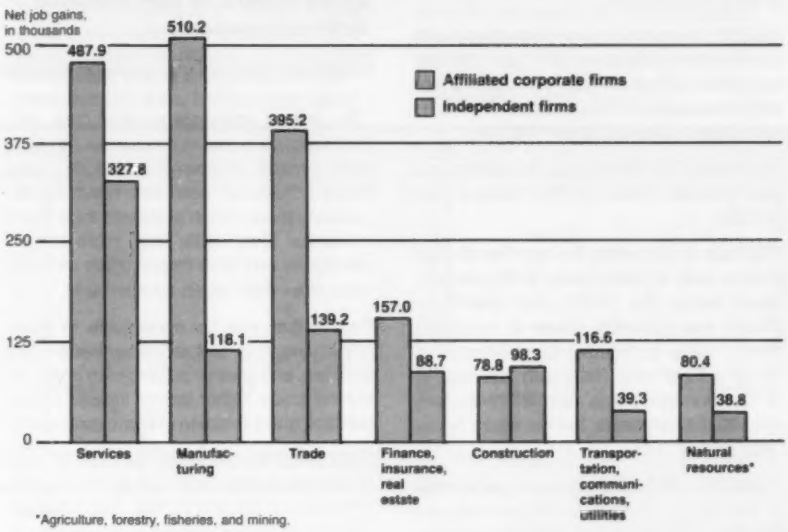
Dependence or Self-Sufficiency?

Despite the statistics, Miller notes a shift in many rural communities away from attracting outside jobs to more emphasis on generating jobs locally by encouraging the development of small businesses. This shift may reflect a growing concern in rural areas that they not be overly dependent on corporate jobs and, thus, vulnerable to adverse decisions made in distant cities. Their concern has a reasonable basis, he adds.

"In recent years, many manufacturing jobs in traditional rural industries, such as textiles, clothing, and electrical machinery, have been permanently lost because national corporations have phased out branch plants in favor of foreign locations that offer cheaper labor and fewer safety and environmental restrictions."

When a large factory shuts down, the consequences can reverberate throughout the entire community, Miller says. With many people out of work, locally based firms, particularly those in service capacities, also lose business. This, of course, can translate into more lost jobs.

Corporate Affiliates Created More New Rural Jobs Than Independent Firms In Every Area Except Construction From 1976-80



*Agriculture, forestry, fisheries, and mining.

There are other advantages, as well, to independent firms based in local communities. Although corporate affiliates have a better overall record in terms of providing job security, the advantage changes hands for older, more established independents. When the concern is layoffs and shutdowns, large independently owned firms that have been in business for more than 5 years tend to offer more secure jobs, according to Miller.

"Unlike many corporate affiliates, these firms have a vested interest in the rural community and its work force," he says. "Their low job loss rate due to closings and employment cutbacks in 1976-80 shows that they keep workers on the job even when it may be unprofitable to do so."

In addition, outside firms sometimes bring in their own managers and technical personnel to fill the higher paying positions in branch offices or factories. Local businesses are more likely to try to hire from their own community.

So, what kind of businesses should rural planners try to attract when mapping out an economic development strategy? In Miller's view, they should try to cultivate both community-based small business and corporate affiliates.

"There are advantages and drawbacks to each that must be considered," he says.

"Corporate affiliates offer the potential for many jobs, and those jobs generally remain available for a number of years. It would be a mistake to ignore their impressive record of job creation in rural areas."

On the other hand, independent firms do seem to have closer—and often longer term—community ties, even if they cannot offer as many jobs or as much initial job security as corporations.

"And," he adds, "the older, large independent firms seem more likely to keep workers on the job when hard times hit." □

[*Based on information provided by economist James P. Miller of the Economic Development Division, Economic Research Service.*]

Who's Making Rural House Calls?

Rural areas may be on the path to better health care, but they are still more than a few steps behind their metro counterparts in attracting doctors.

In 1970, the number of private physicians in nonmetro areas stood at 67 per 100,000 residents, compared with 143 doctors per 100,000 residents in metro areas. The metro advantage: 76 doctors per 100,000.

By the end of the decade, the difference was greater—nearly 100 doctors per 100,000.

"The fact is that while the number of physicians rose in both metro and nonmetro areas during the 1970's, the rate of increase was generally slower in nonmetro areas," says economist Mary Ahearn of USDA's Economic Research Service. In 1979, nonmetro areas claimed 79 doctors per 100,000 residents, but the metro figure had reached 177.

Some metro areas may have an oversupply of physicians, so researchers are not setting the metro figure as a national standard. The metro-nonmetro comparisons are important, however, because they provide a measure of the different levels of medical care available in different communities.

"Physicians act as the gatekeepers to our medical delivery system. A patient cannot get private hospital care, nursing care, or many medications without the authorization of a physician," Ahearn says. "And adequate medical care is important in maintaining the productivity of the labor force and the general welfare of society."

A Matter of Concern

Certainly, the concern over rural health care isn't anything new.

Physicians act as the gatekeepers to our medical delivery system.

"The lack of adequate medical care, particularly physicians, in rural areas has long been a matter of interest and study," says Ahearn. "Overall, nonmetro residents experience more health problems than metro residents. They suffer from more chronic conditions and have higher infant mortality rates than their urban counterparts."

Part of this may be attributable to fewer physicians, lack of specialized health care facilities, and greater distances to hospitals in rural areas. Other factors include poorer nutrition and sanitation in some rural areas.

"The need for physician services in nonmetro areas remained high and may have increased during the 1970's," says Ahearn. "Growth of the rural population was a major factor in boosting the demand for medical services."

As the 1970's progressed, Ahearn goes on to say, "population growth in rural areas exceeded that in metro areas. Retirement, urban flight, resort activities, energy developments, and economic decentralization were thought to be the important sources of this growth. Many of the new residents, the elderly and the well-educated, for example, were frequent users of medical care."

Where Needs Are Greatest

"Although many of the economic and social gaps between metro and nonmetro areas are narrowing, some rural areas have been persistently poor during the past several decades," says Ahearn.

Despite an influx of elderly residents in need of medical care, rural areas fell further behind metro areas in attracting physicians.

"Bypassed by development, most of these low-income counties are in the Southeast and Appalachia."

The infant mortality rates in such counties are much higher than those in other nonmetro counties and metro areas.

In 1978, for example, there were 18.6 infant deaths per 1,000 live births in these persistently poor counties, compared with an infant mortality rate of 13.8 for other nonmetro areas and 13.7 for metro areas.

And far fewer doctors are to be found in these low-income areas.

"There are less than half the number of nonfederal doctors in these areas as there are in other nonmetro areas," says Ahearn. "Clearly, the help of the government through such programs as the National Health Service Corps, which provides federal doctors, will remain necessary. That's especially true in counties where poverty has been the root cause of the lack of physicians." □

[Based on information provided by economist Mary Ahearn of the National Economics Division, Economic Research Service.]

Nonmetro Counties, Especially Poor Counties, Attract Fewer Doctors

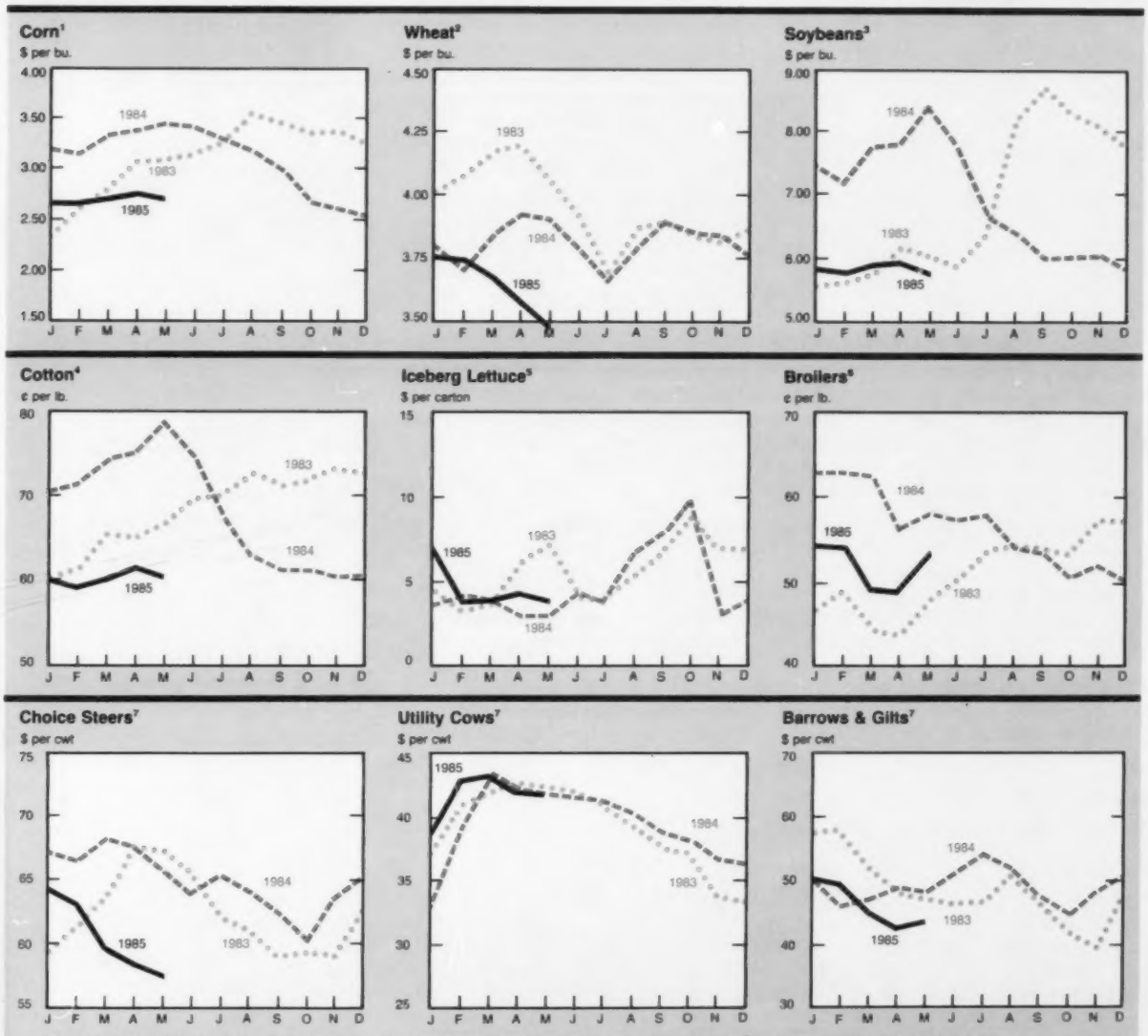
	Population, in thousands		Percent	Physicians per 100,000 people		Percent
	1970	1980	change	1970	1979	change
United States	203,213	226,546	11%	123	149	21%
Metro	148,809	163,526	10%	143	177	24%
Nonmetro	54,404	63,020	16%	67	79	18%
Nonmetro poor[1]	3,106	3,524	13%	35	38	9%

[1]These are "persistent low-income" counties, which have been at the poverty level for several decades.

FARMLINE TRENDS

Monthly Price Monitor

USDA's May index of farm prices declined 1.5% from April and was 11% below its year-earlier level. Corn prices declined 4¢, while wheat slid to $3.43, down 19¢ from April and more than 30¢ below the price at the start of the year. Soybeans dropped to $5.76 per bushel, while cotton held fairly steady at 60¢ a pound. Except for lettuce, all crop prices were below year-earlier levels. In the meat animals area, broilers rose about 5¢ a pound, but choice steers fell another $1 per cwt to $57.55, the lowest price in several years. Barrows and gilts gained $1 to $43.34, but that's still $5 below the May 1984 price. All prices shown are monthly averages.



[1]No. 2 yellow, Central Illinois. [2]No. 1 HRW, Kansas City. [3]No. 1 yellow, Central Illinois. [4]SLM 1⅛" spot market price. [5]Standard carton 24's, California-Arizona. [6]Wholesale, New York. [7]Omaha.

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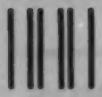

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